

REMARKS

Applicants have carefully considered the August 11, 2004 Office Action, and the amendments above together with the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claims 1-7 are pending in this application. In response to the Office Action dated August 11, 2004, claims 1-3, 5 and 7 have been amended. Care has been exercised to avoid the introduction of new matter. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed claims and disclosure as, for example, the depicted embodiments and related discussion thereof in the written description of the specification. Applicants submit that the present Amendment does not generate any new matter issue. Entry of the present Amendment is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claim 7 was objected to because of minor informalities. Applicants have amended claim 7 in accordance with the Examiner's suggestions. Accordingly, reconsideration and withdrawal of the objection is solicited.

Claims 1-4 and 7 were rejected under 35 U.S.C. § 112, second paragraph. The Examiner asserts that it is unclear whether the two conditions joined by the claim element "and/or" of claim 1 must occur together. Applicants respectfully traverse the rejection in view of the amendments above.

Claim 1 has been amended to clarify the "and/or" expression objected by the Examiner. Moreover, claims 2, 3, and 7 have been amended to address the issues raised by the Examiner. The amendments clarify the limitation of the clock recovery circuit in claims 2, 3, 5 and 7, since claims

3 and 7 are drawn to a receiver, while claims 2 and 5 are directed to a transmitter. As such, the clock recovery circuit recited in claims 3 and 7 are clearly different from the clock recovery circuit recited in claims 2 and 5. Claim 1 and the claims dependent thereon, have also been amended to recite “at least one transmitter” and “at least one receiver” because multiple transmitters and receivers are illustrated, for example, in Fig. 3 of Applicants’ drawings. Accordingly, one having ordinary skill in the art would not have difficulty understanding the scope of the presently claimed invention, particularly when reasonably interpreted in light of the supporting specification. Therefore, it is respectfully submitted that the imposed rejection of claims 1-4 and 7 under 35 U.S.C. § 112, second paragraph is not legally viable and hence, solicit withdrawal thereof.

Claim 1 was rejected under 35 U.S.C. § 103 as being unpatentable over Okano et al. (U.S. Pat. No. 6,449,074, hereinafter “Okano”) in view of “Evolution of Optical Transport in the AT&T Network (OFC’ 98, 1998)” to Clark and Marmur (U.S. Pat. No. 6,466,886). Applicants respectfully traverse.

The Examiner asserted that Okano discloses all claim elements, except an SDH optical signal, and a receiver that shuts down the optical output of the receiver when a non-modulated signal is detected. The Examiner then relied upon Clark and Marmur in an attempt to cure these deficiencies. Applicants traverse.

Okano discloses a first terminal station 2 having a plurality of optical senders (OS) 8 for outputting optical signals having arbitrary wavelengths, and a transponder 8 operatively connected to the optical senders 8, where the transponder 8 includes a plurality of wavelength converters 12 for wavelength converting the optical signals having arbitrary wavelengths from the optical senders 8 into optical signals having predetermined wavelengths (see, col. 4, lines 4-18). Okano also discloses adjusting the level adjusting unit 56 according to the result of detection of the number of

WDM channels so as to keep constant of the total power of the WDM signal light, and to prevent the transmitted output light from exceeding an allowable range (see, Fig. 8 and col. 8, lines 6-28). Okano further discloses a wavelength converter 12 having an O/E converter 70 for converting an optical signal to an electrical signal, and an E/O converter 68 for converting the electrical signal output from the O/E converter 70 into an optical signal. When a signal break is detected by the O/E converter 70, the E/O converter 68 emits steady light to thereby reduce the range of output level variation (see, Figs. 12 and 13, and col. 9, line 62 to col. 10, line 14).

However, at a minimum, Okano, Clark and Marmur, taken alone or in combination, do not disclose or suggest that the optical signals output from the transponder 10 are optical signals having non-modulated state and optical level being substantially the same as in a modulated state. Indeed, Okano only discloses a compensator for adding light having a predetermined wavelength to the WDM signal light when one of the optical signals is cut off (Abstract).

In contrast, in accordance with the present invention, when the power level of the input signal is lower than a predetermined level, the SDH receiving circuit 11 sends a "loss of signal" (LOS) alarm to the CPU 17. The clock recovery circuit 12 recovers a clock signal from the electric signal converted by the SDH receiving circuit 11 and detects a frame synchronous signal. When the clock can not be recovered or when the frame synchronous can not be established, the clock recovery circuit 12 sends a "loss of lock" (LOL) alarm to the CPU 17. Then, the output of the clock recover circuit 12 is input to the driving circuit 13 and is amplified to a swing voltage enough to drive the external modulator in the E/O converter 16. An input threshold value of the driving circuit 13 is determined by the threshold signal output from the CPU 17. The driving signal for the external modulator is superimposed on the bias voltage set by the bias adjusting circuit 15 through the bias-T circuit 14, and output to the E/O converter 16. Thus, when a missed optical input signal

or an incorrect transmission ratio is detected in the transmitter, the optical output of the transmitter is set to be non-modulated and equivalent level to the modulated state. Since the optical output of the transmitter and the input level of the optical amplifier inserted into the transmission line are kept constant, the deterioration of the signal to noise ratio or the over power of the receiver input can be prevented.

However, Okano, Clark and Marmur, taken alone or in combination, do not discuss these problems recognized by the present invention, let alone suggest a solution for solving the foregoing problems. Thus, at a minimum, Okano, Clark and Marmur, taken alone or in combination, fail to disclose or suggest providing an optical signal having a non-modulated state and an optical level the same as modulated state, as is recited in claim 1.

Furthermore, the Examiner asserted that Marmur discloses shutting down the transmitter when an unmodulated signal is received, because Marmur suggests turning off the TX-EN signal so as to disable the transmitter under abnormal condition. However, it does not appear that the Examiner's conclusion is supported by Marmur. Indeed, Marmur merely discloses identifying at least two different optical signal each being uniquely identifiable in terms of transmission protocol or bit rate (see, col. 1, lines 26-38). Even assuming *arguendo* that Marmur discloses **shutting down the transmitter** when an unmodulated signal is received in the manner asserted by the Examiner, at a minimum, Marmur does not disclose or suggest that the receiver **shuts down the optical output of the receiver** when the non-modulated signal is detected, as is recited in claim 1.

As disclosed in the present disclosure, an objective of the present claimed subject matter (claim 1) is to maintain a constant optical output level of the transmitter, even if a signal inputted to the transmitter is missing or is a signal at an incorrect transmission rate. As an example, a signal state is changed from a modulated state to a non-modulated state. With such a structure in a WDM

system, the light fluctuation on a transmission path can be reduced, and thus, it is possible to prevent the degradation of transmission characteristics by stabilizing an input power of the optical amplifier.

A second objective of the present claimed subject matter (claims 2 and 5) is that in a transmitter, when LOS, LOL, etc, are detected, an output signal is made to be non-modulated state by changing a threshold level of a driver and made to have an optical output level being substantially the same as in a normal state by adjusting a bias circuit. In an abnormal state, an output signal is forcibly changed to a non-modulated state.

Further, as recited in claims 3 and 7, another object of the present invention is that in a receiver, an abnormal signal at the transmitter side is detected by CDR and an optical output of the receiver is shut down. With such a structure, an abnormality of transmission path is assuredly transmitted to a receiver connected to the abnormal transmitter and further an abnormality if signal is assuredly transmitted to a SDH system connected to a receiver.

Accordingly, for the reasons outlined above, Applicants respectfully submit that the Examiner has failed to discharge the initial burden of establishing a *prima facie* basis to deny patentability to the claimed invention under 35 U.S.C. § 103. The rejection of claim 1 should be withdrawn.

Claims 2-3, 5 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Okano, Clark, and Marmur, and further in view of Kobayashi (U.S. Pat. No. 6,192,060). In the Office Action dated August 11, 2004, it is admitted that Okano, Clark and Marmur do not disclose or remotely suggest a threshold setting circuit or a bias circuit for the **transmitter**, but nevertheless, the Examiner turns to Kobayashi in an attempt to cure these deficiencies (see, page 5, line 6 of Office Action). Applicants traverse.

Applicants submit that Okano, Clark, Marmur nor Kobayashi, taken alone or in combination, discloses or suggests a receiver comprising a clock recovery circuit or an SDH signal generating circuit, as is recited in dependent claims 3 and independent claim 7. Further, neither Okano, Clark, Marmur nor Kobayashi, taken alone or in combination, disclose or suggest providing a driving circuit, or setting the input threshold voltage so as to fix the output of the driving circuit while the adjusting the bias voltage via the adjusting circuit so that the optical output level is equal to the optical level in the normal state when the receiving circuit detects a missing input signal or out of synchronous signal, as is recited in independent claim 5, or the relationship between the predetermined bias voltage in a modulated state and a non-modulated state of the transmitter, as is recited in claim 6. Indeed, the Examiner has failed to identify which element of Okano, Clark, Marmur or Kobayashi corresponds to the claimed driving circuit. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). For the reasons outlined above, Applicants respectfully submit that the Examiner has failed to discharge the initial burden of establishing a *prima facie* basis to deny patentability to the claimed inventions under 35 U.S.C. § 103. Accordingly, independent claims 5 and 7, as well as their respective dependent claims are free from the applied art. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 is solicited.

Dependent claims 4 and 6 were rejected under 35 U.S.C. § 103 for obviousness based upon the combined disclosure of Okano, Clark, Marmur, Kobayashi, and further in view of Blank (U.S.

Pat. No. 6,512,620). Applicants respectfully traverse. Applicants submit that Blank fails to remedy the above argued deficiencies of Okano, Clark, Marmur and Kobayashi. Ergo, even if the applied references are combined as suggested by the Examiner, and an Applicants do not agree that a requisite fact-based motivation has been established, the claimed invention would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). Accordingly, the rejection is not viable and should be withdrawn.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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